

## ABSTRACT

A configurable lookup table extension system including a plurality of lookup tables arranged in an internal memory, an external memory, and a flexible controller configured to couple at least one of the plurality of lookup tables to the external memory through a single memory interface is disclosed. Implementations of this system can support the flexible allocation of IP and MAC table entries so that a router/switch can flexibly support applications suited to a particular allocation. This approach provides an efficient scheme for extending multiple internal tables to external memory via a single external interface. Further, such extensibility is also programmable to allow the size and number of external tables to be configured by software. This solution can provide the flexibility of customizing table sizes for different markets and/or customer requirements.